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| 10/579,202 | 05/12/2006 | Akiko Toriyama | SON-3140 | 6905 |

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| EXAMINER | |
|---|---|
| KIANNI, KAVEH C | |

| ART UNIT | PAPER NUMBER |
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| 2883 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/579,202 | TORIYAMA ET AL. | |
| | Examiner | Art Unit | |
| | Kianni C. Kaveh | 2883 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3,5,9-12,14, 16 and 17-18* is/are pending in the application.

4a) Of the above claim(s) *11,12,14,16 and 18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,9,10 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/1/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

**DETAILED ACTION**

Applicant's election with traverse of claims 1-3, 5 and 9-10 in a paper submitted on 11/13/07 is acknowledged. Nonetheless, the applicant has amended the claims by supplying new claims 17 and 18 that prompts a new restriction requirement as follows:

- This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1. The species are as follows:

I) Claims 1-3, 5, 9-10 and 17 are directed to LCD including alignment films for orienting liquid crystal in a predetermined direction are formed, the alignment films facing each other across a predetermined gap by a sealing material to bond the pair of substrates between which a liquid crystal layer is sandwiched.

II) claims 11-12, 14 and 16 are directed to LCD, projection type display including a condensing optical system for guiding the light emitted from the light source to a liquid crystal display device, and a projection optical system for enlarging and projection light modulated by the liquid crystal display device.

III) claim 18 that includes claim 1 directed to LCD including means, including a light source and a condensing optical system, for guiding light emitted from the light source to said liquid crystal display and enlarging and projecting light modulated by the liquid crystal display device.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An

argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The claims are deemed to correspond to the species listed above in the following manner:

I) Claims 1-3, 5 and 9-10
II) claims 11-12, 14 and 16
III) claims 18 and 1

The following claim(s) are generic: claim 1 is only generic to claim 18.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: as stated above each invention is has limitation(s) that is directed toward an invention that would require a different search that that of other group inventions and because each of the above inventions defining an invention that is distinct that that of the other and requiring a different search.

A telephone call was made to applicant—talked MR. Tobin-- on 1/24/07 to request an oral election to the above restriction requirement, in which an election being made without traverse—therefore makes the examiner response to the initial election moot, but FINAL.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Takeda (US 6661488) and Takeuchi et al. (US 5327271) .

Takeda teaches a liquid crystal display (at least fig. 4, 13-14 and 19 and 57) comprising two substrates on which alignment films for orienting liquid crystal in a predetermined direction are formed (shown in at least figures 1 and 10, also col. 13, line 64-col. 14, line 13) the alignment films facing each other across a predetermined gap by a sealing material to bond the pair of substrates between which a liquid crystal layer is sandwiched (see at least fig. 17 and 18 and 205 , item 101, and col. 57, 6th parag., col. 72, lines 23-30 and col. 84, 3rd parag. ), wherein the sealing material contains a filler having a mean particle size of less than 0.5 μm and a maximum particle size of 1.5 μm or less (at least col. 66, lines 32-35), the liquid crystal material used in the liquid crystal layer has a refractive index anisotropy at room temperature of 0.16 or more (see fig. 127, item refractive index anisotropy in which Δn is equal—0.6 μm /3.6 μm--at least 0.167, also see fig. 128); and a cell gap is of about 3.2 μm (shown in at least fig. 169).

Takeda further teaches wherein the liquid crystal material used in the liquid crystal layer has a refractive index anisotropy at room temperature of 0.18 or more (see fig. 128); wherein the content of the filler contained in the sealing material is within a range of 15 to 40 wt %. (for such conventional limitation—see at least 11-095232—rovided by the applicant-- see at least fig. 205 and 17-18 and relevant specifications, wherein sealing material is at least within weight per unit length of 15 to 40 wt %);

wherein a specific surface area of the filler contained in the sealing material is 30 $m^2/g$ or less (see at least fig. 205 and 17-18 and relevant specifications ; wherein surface area per unit length is in comfortable working range); wherein the alignment film material is an inorganic alignment film (see col. 73, lines 47-48, such material is well known material in a level of ordinary skill in the art and does not have a bearing into invention).

However, Takeda dopes not specifically teach wherein the above cell gap is 3 μm or less. Takeuchi et al. teaches a LCD having two substrates with refractive index anisotropy in which Δn of 0.254 and gap/cell spacing that includes 2 μm (see col. 18, 2nd parag.). Thus, Takeuchi provides display with electrical switching at high rate and response (see filed of invention). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify Takeda's cell gap with that of conventional spacing of 3 μm taught by Takeuchi in order to produce a LCD that includes the above limitations since such size would provide high performance viewing angle (see the first parag. of summary) and since a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Takeda (US 6661488) and Takeuchi et al. (US 5327271) and further in view of Kurihara et al. (US 20050105016 A1).

Regarding claim 17, the combination of Takeda and Takeuchi teach all limitations that the claim depends on. Takeda further teaches a light that project light to the display device (see col. 20, 3rd parag.); however, the combination does not specifically teach a condensing optical system for guiding the light emitted from the light source to said liquid crystal display device, and a projection optical system for enlarging and projecting light modulated by the liquid crystal display device. Such extremely conventional limitation is more specifically taught by Kurihara et al. (see at least parag. 0063 and fig. 23 and parag. 0210). Thus, Kurihara provides image shifting device suitably used in a head mount display or a projection image display apparatus (projector), and an image display apparatus including the image shifting device (0002). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify the above combination by incorporating the convention projector system of Kurihara in order to produce a LCD that includes the above limitations since such size would provide high performance viewing angle (see the first parag. of summary)

***Citation of Relevant Prior Art***

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

*Also: At least three of the following references teach claim 17*

US 20030137624 A1

US 20040189923 A1

US 20050105016 A1

US 7277140 B2

US 20030107698 A1

US 20070259134 A1

US 5748275 A

US 6661488 B1

US 5327271 A

US 20070013862 A1

US 20040021818 A1

US 7199855 B2

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kianni C. Kaveh whose telephone number is 571-272-2417. The examiner can normally be reached on 9:30-19:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kianni Cyrus K./
Primary Examiner, Art Unit 2883

January 28, 2008